

## REMARKS

In response to the Office Action dated April 14, 2009, Applicants respectfully request reconsideration based on the above claim amendments and the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 9-12, 17-23 and 26-29 are pending in the present Application. Claims 9 and 23 are amended to better set forth the invention, and Claim 31 is added, leaving Claims 9-12, 17-23 and 26-31 for consideration upon entry of the present amendments and following remarks.

Support for the claim amendments can at least be found in the specification, the figures, and the claims as originally filed. Particularly, support for amended Claim 9 and new Claim 31 is at least found in originally filed Figures 3A and 3B, and in the specification at page 10, line 21 to page 11, line 6. Support for amended Claim 23 is at least found in originally filed Figure 1, and in the specification at page 6, lines 14-23.

No new matter has been introduced by these amendments. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

### **PTO-892 form and Brogårdh, U.S. Patent No. 4,475,240**

Applicants thank the Examiner for formally indicating consideration of U.S. Patent No. 4,475,240 to Brogårdh et al. on the PTO-892 form accompanying the instant Office action.

### **Claim Rejections Under 35 U.S.C. § 103**

#### **Claims 9-12 and 17**

Claims 9, 10 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,736,686 to Perret (hereinafter “Perret”) in view of U.S. Patent No. 4,470,045 to Anderson (hereinafter “Anderson”).

Claims 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Perret and Anderson, and further in view of U.S. Patent No. 4,521,772 to Lyon (hereinafter “Lyon”). Applicants respectfully traverse the rejections for the reasons set forth below.

Amended independent **Claim 9** recites, *inter alia*:

“the light concentrating pad comprising:  
*an optical wave guide;*  
*a lower reflecting plate* attached to a bottom of the optical wave guide for upwardly reflecting light introduced into the optical wave guide;  
*an upper transparent plate* attached to a top of the optical wave guide for passing the light reflected from the lower reflecting plate, the upper transparent plate having an extension portion protruding from an edge of the lower reflecting plate, an opening in the extension portion for exposing the optical waveguide, and a surface of an entrance of the opening being parallel to a surface of the lower reflecting plate in direct contact with the optical wave guide;  
*side reflecting plates* attached to a portion of sides of the optical wave guide for reflecting the light in the optical wave guide; and  
*a light concentrating plate* attached to the edge of the lower reflecting plate, wherein the light concentrating plate is disposed on another portion of the sides of the optical wave guide and under the opening of the upper transparent plate, extending diagonally and upwardly from the lower reflecting plate to the upper transparent plate, contacting the lower reflecting plate and the upper transparent plate, contacting external light passing through the opening of the upper transparent plate, and reflecting the external light into the optical wave guide,  
*wherein the lower reflecting plate, the upper transparent plate, the side reflecting plates and the light concentrating plate are configured as one body to constitute the light concentrating pad, and*  
*wherein the optical wave guide is a vacant space disposed between the lower reflecting plate, the light concentrating plate, the side reflecting plates and the upper transparent plate.”*

Regarding **Perret** in the instant Office action at Pages 3 and 4, Figure 1 and Col. 3, line 63 are cited as teaching the claimed invention. Particularly, light guide 14, reflective structure 15, top surface 49/diffuser 56, virtual bulb 52, and silver tape 47, in Figure 1 of Perret are respectively considered as teaching the “optical waveguide,” the “lower reflecting plate,” the “upper transparent plate,” the “side reflecting plates” and the “light concentrating plate” of Claim 9.

Perret teaches the optical light guide 14 as a solid, generally rectangular and relatively thick sheet of optically clear material (i.e., clear plastic or acrylic). (See, Col. 4, lines 33-42.) Perret further teaches the separate reflective structure 15 is disposed *between a bottom surface of the solid sheet optical light guide 14 and a portion of support structure 12.* (See, Col. 3, lines 63-65 and Figure 1.) Perret further teaches a separate mask 54 can be placed *on top of the light guide 14 but underneath the diffuser 56*, since the separate member *diffuser 56 is placed on top*

of the light guide 14. (See, Col. 5, lines 39-41 and Figure 1.) Perret further teaches the front edge 36 of the light guide 14 is covered with a separate member of a highly reflective coating or mylar tape 50, which creates the virtual bulb 52. (See, Col. 5, lines 60-20 and Figure 1.) Perret further discloses that an *inside surfaces of the frame* that houses bulb 16 can be coated with a separate reflective coating, such as silver tape 47. (See, Col. 14, lines 27-30 and Figure 1.)

That is, the light guide 14 (as the “optical waveguide”), the reflective structure 15 (as the “lower reflecting plate”), the top surface 49 of the diffuser 56 (as the “upper transparent plate”), the mylar tape 50/virtual bulb 52 (as the “side reflecting plate”) and the silver tape 47 (as the “light concentrating plate”) are not configured as *one body* to constitute the light concentrating pad of Claim 9, such that the light concentrating pad is a *single unitary indivisible body* of Claim 31. To the contrary, Perret specifically teaches the separate elements of the reflective structure 15, the diffuser 56, the mylar tape 50/virtual bulb 52 are only placed on the separate light guide 14, while the silver tape 47 is placed nowhere on the separate light guide 14. Therefore, Perret does not teach or suggest the lower reflecting plate, the upper transparent plate, the side reflecting plates and the light concentrating plate are configured as one body to constitute the light concentrating pad of amended independent Claim 9, and the light concentrating pad is a single unitary indivisible body of Claim 31.

Furthermore, Perret specifically teaches the optical light guide 14 as a solid, generally rectangular and relatively thick sheet of optically clear material (i.e., clear plastic or acrylic). (See, Col. 4, lines 33-42.) That is, the optical light guide 14 is a solid member of material, and does not teach or suggest and cannot be considered as a “space” between the disposed between the reflective structure 15, tape 47 (Figure 1), the mylar tape 50/virtual bulb 52 and the diffuser 56. Therefore, Perret does not teach or suggest the optical wave guide is a vacant space disposed between the lower reflecting plate, the light concentrating plate, the side reflecting plates and the upper transparent plate of amended independent Claim 9.

In the instant Office action at page 4, it is conceded that Perret does not teach or suggest the light concentrating plate is attached to an edge of the lower reflecting plate and separated from the upper transparent plate. Regarding **Anderson** in the instant Office action at Pages 3 and 4, polarizer sheet 40, front surface 42 of slab 32, edge 52 of slab 32, surface 54, and reflective material 54 on edge 50 in Figure 4 are respectively considered as teaching the “upper

transparent plate," the "lower reflecting plate," the "optical waveguide," the "side reflecting plate" and the "light concentrating plate" of the claimed invention.

Anderson teaches the separate polarizer sheet 40 is placed *adjacent* to the front surface 42 of the slab 32. (See, Col. 3, lines 23-27 and Figure 4.) That is, the edges 52 and 54 of slab 32, the front surface 42 of the slab 32 and the polarizer sheet 40 are not configured as *one body* to constitute the light concentrating pad of Claim 9, such that the light concentrating pad is a *single unitary indivisible body* of Claim 31. To the contrary, Anderson specifically teaches at least the separate elements of the polarizer sheet 40 is only placed *adjacent* to the separate slab 42/52/54/32. Therefore, Anderson *does not teach or suggest the lower reflecting plate, the upper transparent plate, the side reflecting plates and the light concentrating plate are configured as one body to constitute the light concentrating pad* of amended independent Claim 9, and *the light concentrating pad is a single unitary indivisible body* of Claim 31, and does not remedy the deficiencies of Perret.

Furthermore, Anderson specifically teaches the slab 32 comprises a transparent material such as glass or plastic. (See, Col. 3, lines 8-10.) That is, the slab 32 (as the "optical wave guide") is a solid member of material, and does not teach or suggest and cannot be considered as a "space" between the disposed between at least the polarizer sheet 40, the front surface 42 of slab 32, the edges 52/54 of slab 32 and the reflective material 54 on edge 50 in Figure 4. Therefore, Anderson *does not teach or suggest the optical wave guide is a vacant space disposed between the lower reflecting plate, the light concentrating plate, the side reflecting plates and the upper transparent plate* of amended independent Claim 9, and does not remedy the deficiencies of Perret.

In the instant Office action at page 6, it is conceded that Perret and Anderson do not teach or suggest the further detail regarding the optical pointing device and Lyon is relied upon as teaching the optical pointing device of Claims 11 and 12. Applicants respectfully submit that Lyon *does not teach or suggest the lower reflecting plate, the upper transparent plate, the side reflecting plates and the light concentrating plate are configured as one body to constitute the light concentrating pad, and the optical wave guide is a vacant space disposed between the lower reflecting plate, the light concentrating plate, the side reflecting plates and the upper transparent plate* of amended independent Claim 9, and *the light concentrating pad is a*

**single unitary indivisible body** of Claim 31, and does not remedy the deficiencies of Perret and Anderson.

Thus, since Perret, Anderson and Lyon, alone or in combination, *fail to teach or suggest* all of the limitations of at least amended independent Claim 9, *prima facie* obviousness does not exist regarding at least amended independent Claim 9 with respect to Perret, Anderson and Lyon. Applicants respectfully submit that Claim 9 is not further rejected or objected, and is therefore allowable. As Claims 10-12 and 17 variously depend from Claim 9, they are correspondingly allowable. Entry of the claim amendments, reconsideration, withdrawal of the relevant §103 rejections, and allowance of Claims 10-12 and 17 are respectfully requested.

**Claims 23 and 26-29**

Claims 23 and 26-30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,475,240 to Brogårdh et al. (hereinafter “Brogårdh”) in view of U.S. Patent No. 6,377,249 to Mumford (hereinafter “Mumford”). Applicants respectfully traverse the rejections for the reasons set forth below.

Amended Claim 23 recites, *inter alia*:

“An optical cursor control device having a worktable and an optical pointing device moved on the worktable by an operator, the optical pointing device comprising:  
a case;  
an optical sensor disposed in the case;  
*a light guide disposed on an outer sidewall of the case, and including first and second surfaces* respectively on predetermined portions of the light guide,  
the first surface of the light guide being spaced away from the case and accepting light reflecting from a surface of the worktable adjacent to the case, and  
the second surface of the light guide being adjacent to the case and introducing the light penetrating the light guide onto an optical sensor in the case, the first and second surfaces including one optically functioning material, and a remaining portion of the light guide including optically different functioning material from the first and second surfaces; and  
wherein *the first and second surfaces are in direct contact with and are supported by the remaining portion of the light guide*, and  
wherein *the light sequentially traverses the first surface, the remaining portion and the second surface of the light guide*.”

In the instant Office action at Pages 12 and 13, Figures 4a and 9 of Brogårdh are cited as teaching the claimed invention. Particularly, pen/case 333 (Figure 4a), photodiode 129 (Figure 9), fiber 36/121 (Figure 9), bottom of fiber 36 (Figure 9) and top of fiber 121 (Figure 9) of

Brogårdh are respectively considered as teaching the “case,” the “optical sensor,” the “light guide,” the “first surface of the light guide” and the “second surface of the light guide” of Claim 23. In the Response to Arguments on Page 3 of the instant Office action, it is alleged that Figure 4b of Brogårdh shows light conducting fiber 36 (as the “light guide”) disposed on a sidewall of pen/case 33 (as the “case”).

Brogårdh teaches a marking device 33 having a writing point 34 (Figures 4a and 4b) surrounded by fibers 36-38, the writing point 34 and the fibers 36-38 being disposed *within the case* 33, and light is reflected back from material 3 into fibers 35-38, passed to branches 124-127 and forwarded to fibers 120-123. (See, Col. 4, lines 49-63, and Col. 7, lines 1-16 and Figures 4a-4c and 9.) As clearly shown in Figures 4a, 4b and 9, the fiber 36/121 (as the “light guide”) is not disposed on an outer sidewall of the pen/case 33 (as the “case”). Therefore, Brogårdh *does not teach or suggest a light guide disposed on an outer sidewall of the case* of amended independent Claim 23.

Furthermore, Brogårdh teaches one example of an optical arrangement of four optical fibers, 35-38 in Figures 4a-4c. (See, Col. 7, lines 1-23.) Light from LED chips 111 and 112 is led into fibers 116-119 and passed via branches 124-127 to the fibers 35-38, where light reflected back from material 3 into the fibers 35-38 and passed into branches 124-127 to be forwarded to the fibers 120-123, respectively. (*Id.*) Brogårdh specifically teaches, for example in Figure 9, that fibers/branches 35-38, 117-119 and 120-127 are continuous members. That is, the bottoms of fibers 35-38 (as the “first surface”) and the tops of branches 120-123 (as the “second surface”) are the same material as the fibers 116-119 and the branches 124-127 (as the “remaining portion of the light guide”).

Therefore, the bottoms of fibers 35-38 and the tops of branches 120-123 as taught by Brogårdh *do not teach or suggest a light guide disposed on an outer sidewall of the case and including first and second surfaces, the first and second surfaces including one optically functioning material, and a remaining portion of the light guide including optically different functioning material from the first and second surfaces, wherein the first and second surfaces are in direct contact with and are supported by the remaining portion of the light guide and wherein the light sequentially traverses the first surface, the remaining portion and the second surface of the light guide and wherein the light sequentially traverses the first surface, the remaining portion and the second surface of the light guide* of amended Claim 23.

In the instant Office action at page 4, it is conceded that Brogårdh does not teach or suggest the first surface is spaced away from the case or that the light guide includes differently functioning optical material. Regarding Mumford with respect to independent Claim 23 in the instant Office action at Page 8, tip 7 (Figure 20), collimating lens 101 and each sensor (Figure 10) and fiber bundles 104r,g,b and 109' (Figures 10 and 20) of Mumford are respectively considered as teaching the “first surface,” the “first and second surfaces including one functioning material” and the “remaining portion of the light guide including a different functioning material than the first and second surfaces.”

Applicants understand that the rejection details appear to generally allege that “each sensor” in Figure 10 is being considered as teaching the “second surfaces including the one functioning material as the first surfaces.” For purpose of this response, the photodiodes 106r,g,b and/or the fiber optic bundle 109’ in Figure 10 of Mumford are considered the “sensors” referred to in the rejection details, and are considered the “second surfaces” of the claimed invention. If this understanding is not correct, Applicants respectfully request further clarification on what element or feature in Mumford is considered as teaching the “first and second surfaces including one functioning material.”

Mumford teaches a fiber optic bundle 15 terminating in the tip 7 and surrounded by a sheath 5, gathers and transfers light to bundles 104r,g,b and to filters 106r,g,b. (See, Col. 15, lines 25-48 and Figure 20.) Switches 11a,b are mounted on the exterior of case 25. (*Id.*) A fourth bundle 109’ may be used to transmit light emitted by LED emitter 109 toward the tip 7. (*Id.*)

Mumford further teaches the collimating lens 101 contacts a contact region of display screen 12 and light from the contact region is fed through light pipe 103 and divided into fiber bundles 104r,g,b, filtered through filters 105r,g,b (not shown in Figure 10) and received by the photodiodes 106r,g,b, respectively. (See, Col. 12, lines 13-52 and Figure 10.) Mumford further teaches a light emitting diode emitter 109 emits light which is received by a fiber optic bundle 109’. (*Id.*)

As clearly shown in Figures 10 and 20, the tip 7/bundles 104r,g,b, 109’/collimating lens 101/ (as the “light guide”) is not disposed on an outer sidewall of the sheath 5/case 25 (as the “case”). Therefore, Mumford *does not teach or suggest a light guide disposed on an outer*

sidewall of the case of amended independent Claim 23, does not remedy the deficiencies of Brogårdh.

Furthermore, Applicants find no teaching in Mumford of the collimating lens 101 (as the “first surface”) and the photodiodes 106r,g,b (as the “second surface”) as including *one optically functioning material* as claimed. Even if the fiber bundles 104r,g,b and 109’ are considered as the “second surface” of the claimed invention, Applicants find no teaching in Mumford of the collimating lens 101 (as the “first surface”) and the fiber bundles 104r,g,b and 109’ as including *one optically functioning material* as claimed. Therefore, Mumford *does not teach or suggest a light guide disposed on an outer sidewall of the case and including first and second surfaces including one optically functioning material, and a remaining portion of the light guide including optically different functioning material from the first and second surfaces, wherein the first and second surfaces are in direct contact with and are supported by the remaining portion of the light guide and wherein the light sequentially traverses the first surface, the remaining portion and the second surface of the light guide* of amended Claim 23, and does not remedy the deficiencies of Brogårdh.

Moreover, if the collimating lens 101 is considered as the “first surface”, and the photodiodes 106r,g,b are considered as the “second surface”, a “remaining portion of the light guide” may be considered as the fiber bundles 104r,g,b and 109’. As clearly shown in Figure 10 of Mumford, the collimating lens 101 and the photodiodes 106r,g,b are *not in direct contact with or supported by* the fiber bundles 104r,g,b and 109’. Therefore, Mumford also *does not teach or suggest a light guide disposed on an outer sidewall of the case and including first and second surfaces, the first and second surfaces including one optically functioning material, and a remaining portion of the light guide including optically different functioning material from the first and second surfaces, wherein the first and second surfaces are in direct contact with and are supported by the remaining portion of the light guide and wherein the light sequentially traverses the first surface, the remaining portion and the second surface of the light guide* of amended Claim 23, and does not remedy the deficiencies of Brogårdh.

Thus, since Brogårdh and Mumford, alone or in combination, *fail to teach or suggest* all of the limitations of at least amended independent Claim 23, *prima facie* obviousness does not exist regarding at least amended independent Claim 23 with respect to Brogårdh and Mumford. Applicants respectfully submit that Claim 23 is not further rejected or objected, and is therefore allowable. As Claims 26-30 variously depend from Claim 23, they are correspondingly allowable. Entry of the claim amendments, reconsideration, withdrawal of the relevant §103 rejections, and allowance of Claims 23 and 26-30 are respectfully requested.

**Conclusion**

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

Applicants hereby petition for any necessary extension of time required under 37 C.F.R. 1.136(a) or 1.136(b) which may be required for entry and consideration of the present Reply.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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